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10/749,380	01/02/2004	Yoshihisa Usami	Q79247	9140

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EXAMINER	
GUPTA, PARUL H	
ART UNIT	**PAPER NUMBER**
2627	

DATE MAILED: 09/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/749,380	USAMI, YOSHIHISA	
	Examiner	Art Unit	
	Parul Gupta	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-23 are pending for examination as interpreted by the examiner. The IDS filed on 1/2/04 was considered.

Claim Rejections - 35 USC § 102

> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 9-11 and 21 are rejected under 35 U.S.C. 102(a) as being anticipated by Miyamoto et al., US Patent 6,529,467.

Regarding claims 9 and 21, Miyamoto et al. teaches in figure 9 a signal output method to be used by an optical information recording medium (abstract and column 2, lines 20-23) comprising: providing a write permission signal including a repetition of a write enable interval ("mark") and a pause interval ("space"); providing a write data signal to be output during the write enable interval ("energy beam pulse train" or "pulse waveform" of column 9, lines 61-65); outputting a write signal including the write permission signal and the write data signal (shown in figure 9); and writing information to an optical information recording medium by using the write signal (column 9, lines 61-65), wherein TI_{max} (Tc immediately preceding 5T space) denotes an output interval of a last write data signal among write data signals corresponding to a write permission signal immediately preceding a pause interval of the write signal in a case in which the pause interval of the write signal is a maximum, TI_{min} (Tc immediately preceding 3T space) denotes an output interval of the last write data signal among the write data signals corresponding to a write permission signal immediately preceding the pause interval of the write signal in a case in which the pause interval of the write signal is a

minimum, T denotes a reference period, and wherein the write signal is outputted so that TI_{max}, TI_{min} and T satisfy the following formula (2): $TI_{min} - TI_{max} \geq 0.01T$. In the given reference, $TI_{min} - TI_{max} = 2.0T - 1.75T = 0.25T$.

Regarding claim 10, Miyamoto et al. teaches in figure 9 a signal output method according to claim 9, wherein the write signal is outputted so that TI_{max}, TI_{min} and T satisfy the following formula: $0.4T \geq TI_{min} - TI_{max} \geq 0.06T$. In the given reference, $TI_{min} - TI_{max} = 2.0T - 1.75T = 0.25T$.

Regarding claim 11, Miyamoto et al. teaches in figure 9 a signal output method according to claim 9, wherein the write signal is outputted so that TI_{max}, TI_{min} and T satisfy the following formula: $TI_{min} - TI_{max} = 0.25T$. In the given reference, $TI_{min} - TI_{max} = 2.0T - 1.75T = 0.25T$.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-6, 17-18, 20, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. in view of Sasaki et al., US Patent Publication 2004/0008601.

Regarding claims 1 and 18, Miyamoto et al. teaches in figure 9 a signal output method to be used by an optical information recording medium (abstract and column 2,

lines 20-23) comprising: providing a write permission signal including a repetition of a write enable interval ("mark") and a pause interval ("space"); providing a write data signal to be output during the write enable interval interval ("energy beam pulse train" or "pulse waveform" of column 9, lines 61-65); outputting a write signal including the write permission signal and the write data signal (shown in figure 9); and writing information to an optical information recording medium by using the write signal (column 9, lines 61-65), wherein Tf_{max} (first pulse immediately after 5T space) denotes an output interval of a first write data signal among write data signals corresponding to a write permission signal immediately subsequent to a pause interval of the write signal in a case in which the pause interval of the write signal is a maximum, Tf_{min} (first pulse immediately after 3T space) denotes an output interval of a first write data signal among the write data signals corresponding to a write permission signal immediately subsequent to the pause interval of the write signal in a case in which the pause interval of the write signal is a minimum, T denotes a reference period. Miyamoto et al. does not teach a method wherein the write signal is outputted so that Tf_{max}, Tf_{min} and T satisfy the following formula (1): $Tf_{max} - Tf_{min} \geq 0.01T$. However, Miyamoto et al. teaches that there is a difference between the pulse widths in different mark lengths in column 12, lines 64-67 and line 1 of column 13 although the figure only shows a portion of the waveform that includes 4T marks.

Sasaki et al. specifically teaches different mark sizes in figure 16. As can be seen in the figure, a 3T mark follows the shortest space and a 4T mark follows the longest space.

Referring back to Miyamoto et al., the first pulse in a 3T mark (Tf_{min}) has a width of 1T whereas the first pulse in a 4T mark (Tf_{max}) has a width of 1.25T. Thus, the two widths have a difference greater than 0.01T.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of different mark sizes as taught by Sasaki et al. into the system of Miyamoto et al. The reason would be that the pulse width and pulse level are adjusted depending on the material of the disk (paragraph 0134 of Sasaki et al.).

Regarding claim 2, Miyamoto et al., teaches in figure 9 a signal output method, wherein the write signal is outputted so that Tf_{max}, Tf_{min} and T satisfy the following formula: $0.4T \geq Tf_{max} - Tf_{min} \geq 0.06T$. As 1.25T - 1T = 0.25T, this limitation is met.

Regarding claim 3, Miyamoto et al., teaches in figure 9 a signal output method , wherein the write signal is outputted so that Tf_{max}, Tf_{min} and T satisfy the following formula: $Tf_{max} - Tf_{min} = 0.25T$. As 1.25T - 1T = 0.25T, this limitation is met.

Regarding claim 4, Miyamoto et al., teaches in figure 9 a signal output method, wherein the write signal is outputted so that Tf_{max}, Tf_{min} and T satisfy the following formula: $Tf_{max} - Tf_{min} = 0.15T$. Miyamoto et al. teaches that there is a difference between the pulse widths in different mark lengths in column 12, lines 64-67 and line 1 of column 13. The different mark lengths used can contribute to the difference in the pulse widths. Thus, it would be obvious to have values other than 0.25 as specifically taught, but to rather have slight variations of that number based on the mark length used.

specifically taught, but to rather have slight variations of that number based on the mark length used.

Regarding claim 5, Miyamoto et al., teaches in figure 9 a signal output method according to claim 1, wherein the write signal is outputted so that Tf_{max}, Tf_{min} and T satisfy the following formulae: $1.8T \geq Tf_{max} \geq 0.5T$ and $1.8T \geq Tf_{min} \geq 0.5T$. As Tf_{max} is 1.25T and Tf_{min} is 1T, this limitation is met.

Regarding claim 6, Miyamoto et al., teaches in figure 9 a signal output method according to claim 1, wherein the write signal is outputted so that Tf_{max}, Tf_{min} and T satisfy the following formulae: $1.5T \geq Tf_{max} \geq 0.7T$ and $1.5T \geq Tf_{min} \geq 0.7T$. As Tf_{max} is 1.25T and Tf_{min} is 1T, this limitation is met.

Regarding claim 17, Miyamoto et al. teaches in figure 9 a signal output method according to claim 9, wherein Tf_{max} (first pulse immediately after 3T space) denotes an output interval of a first write data signal among write data signals corresponding to a write permission signal immediately subsequent to a pause interval of the write signal in the case in which the pause interval of the write signal is the maximum, Tf_{min} (first pulse immediately after 3T space) denotes an output interval of a first write data signal among the write data signals corresponding to a write permission signal immediately subsequent to a pause interval of the write signal in the case in which the pause interval of the write signal is the minimum, and wherein the write signal is outputted so that Tf_{max}, Tf_{min} and T satisfy the following formula (1): $Tf_{max} - Tf_{min} \geq 0.01T$. Further explanation of the relation of pulse widths can be seen in the rejection of claim 1 above.

Regarding claims 20 and 23, Sasaki et al. teaches an optical information recording medium, wherein the optical information recording medium is a write once type and a dye type (paragraph 0054).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of the given optical information recording medium as taught by Sasaki et al. into the system of Miyamoto et al. The motivation would be to allow the method to conform to various types of recording media (paragraph 0053 of Sasaki et al.).

4. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. in view of Sasaki et al., further in view of Spruit et al., US Patent 6,243,339.

Miyamoto et al. in view of Sasaki et al. teaches all of the limitations of independent claim 1 as set forth in the above rejection.

However, regarding claim 7, Miyamoto et al. in view of Sasaki et al. does not but Spruit et al. teaches in figure 3 a signal output method, wherein when T_{mp} denotes an output interval of each write data signal except the first and the last write data signals among the write data signals, the write signal is outputted so that T_{mp} and T satisfy the following formula: $0.84T \geq T_{mp} \geq 0.4T$. In the given reference, the length of the middle pulse is 2/3T, which falls within the given range.

Regarding claim 8, Miyamoto et al. in view of Sasaki et al. does not but Spruit et al. teaches in figure 3 a signal output method according to claim 1, wherein when T_{mp}

denotes an output interval of each write data signal except the first and the last write data signals among the write data signals, the write signal is outputted so that T_{mp} and T satisfy the following formula: $0.78T \geq T_{mp} \geq 0.6T$. In the given reference, the length of the middle pulse is 2/3T, which falls within the given range.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include a T_{mp} interval in the above ranges as taught by Spruit et al. into the system of Miyamoto et al. in view of Sasaki et al. The motivation would be to reduce jitter by creating an optimized signal (column 6, lines 1-45 of Spruit et al.).

5. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al.

Regarding claim 12, Miyamoto et al. teaches in figure 9 a signal output method according to claim 9, wherein the write signal is outputted but does not explicitly teach the method so that TI_{max}, TI_{min} and T satisfy the following formula: $TI_{min} - TI_{max} = 0.15T$. Miyamoto et al. teaches that there is a difference between the pulse widths in different mark lengths in column 12, lines 39-53. The different mark lengths used can contribute to the difference in the pulse widths. Thus, it would be obvious to have values other than 0.25 as specifically taught, but to rather have slight variations of that number based on the mark length used.

Regarding claim 13, Miyamoto et al. teaches in figure 9 a signal output method according to claim 9, wherein the write signal is outputted so that TI_{max}, TI_{min} and T satisfy the following formulae: $0.9T \geq TI_{max}$ and $0.9T \geq TI_{min}$. Miyamoto et al. does not

explicitly teach that $Tl_{max} \geq 0.2T$ and $Tl_{min} \geq 0.2T$ but teaches that there is a difference between the pulse widths in different mark lengths in column 12, lines 39-53. Column 12, lines 50-53 teaches that one possible value for the width of the cooling pulse can even be 0.25, which is within the given range. The different mark lengths used can contribute to the difference in the pulse widths. Thus, it would be obvious to have slight variations of that number based on the mark length used.

Regarding claim 14, Miyamoto et al. teaches in figure 9 a signal output method according to claim 9, wherein the write signal is outputted so that Tl_{max}, Tl_{min} and T satisfy the following formulae: $0.7T \geq Tl_{max}$ and $0.7T \geq Tl_{min}$. Miyamoto et al. does not explicitly teach that $Tl_{max} \geq 0.3T$ and $Tl_{min} \geq 0.3T$ but teaches that there is a difference between the pulse widths in different mark lengths in column 12, lines 39-53. Column 12, lines 50-53 teaches that one possible value for the width of the cooling pulse can even be 0.25, which falls almost within this range. The different mark lengths used can contribute to the difference in the pulse widths. Thus, it would be obvious to have slight variations of that number based on the mark length used.

6. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. in view of Spruit et al.

Miyamoto et al. in view of Sasaki et al. teaches all of the limitations of independent claim 9 as set forth in the above rejection.

However, regarding claim 15, Miyamoto et al. in view of Sasaki et al. does not but Spruit et al. teaches in figure 3 a signal output method according to claim 9, wherein

when T_{mp} denotes an output interval of each write data signal except first and last write data signals among write data signals, the write signal is outputted so that T_{mp} and T satisfy the following formula: $0.84T \geq T_{mp} \geq 0.4T$. In the given reference, the length of the middle pulse is 2/3T, which falls within the given range.

Regarding claim 16, Miyamoto et al. in view of Sasaki et al. does not but Spruit et al. teaches in figure 3 a signal output method according to claim 9, wherein when T_{mp} denotes an output interval of each write data signal except first and last write data signals among write data signals, the write signal is outputted so that T_{mp} and T satisfy the following formula: $0.78T \geq T_{mp} \geq 0.6T$. In the given reference, the length of the middle pulse is 2/3T, which falls within the given range.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of the length of the middle pulse being in this range as taught by Spruit et al. into the system of Miyamoto et al. The motivation would be to reduce jitter by creating an optimized signal (column 6, lines 1-45 of Spruit et al.).

7. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. in view of Sasaki et al., further in view of Nobukuni et al., US Patent 6,411,579.

Miyamoto et al. in view of Sasaki et al. teaches the limitations of claim 18 but fails to teach the further limitations of claim 19. Nobukuni et al. teaches an optical information recording medium according to claim 18, wherein information can be recorded thereon by using a laser beam having a wavelength in the range of 350 nm to

500 nm (column 27, lines 46-51). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of the given wavelength of recording light as taught by Nobukuni et al. into the system of Miyamoto et al. in view of Sasaki et al. The motivation would be to perform high density recording effectively (column 27, lines 46-51 of Nobukuni et al.).

8. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. in view of Nobukuni et al.

Miyamoto et al. teaches the limitations of claim 21 but fails to teach the further limitations of claim 22. Nobukuni et al. teaches an optical information recording medium, wherein information can be recorded thereon by using a laser beam having a wavelength in the range of 350 nm to 500 nm (column 27, lines 46-51). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of the given wavelength of recording light as taught by Nobukuni et al. into the system of Miyamoto et al. The motivation would be to perform high density recording effectively (column 27, lines 46-51 of Nobukuni et al.).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Park, US Patent 6,628,594 teaches a similar relation of pulse widths.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Parul Gupta whose telephone number is 571-272-5260.

The examiner can normally be reached on Monday through Thursday, from 9:30 AM to 7 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea Wellington can be reached on 571-272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PHG
9/22/06

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